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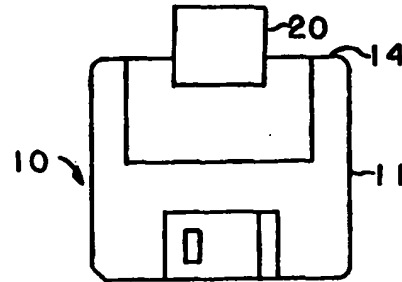
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/US94/11737 (22) International Filing Date: 7 October 1994 (07.10.94) (30) Priority Data: 08/134,969 12 October 1993 (12.10.93) US (71)(72) Applicant and Inventor: SCHIAVONE, Vincent, J. [US/US]; 36 Continental Drive, P.O. Box 284, Valley Forge, PA 19481 (US). (74) Agents: PRESTIA, Paul, F. et al.; Ratner & Prestia, Suite 400, 500 North Gulph Road, P.O. Box 980, Valley Forge, PA 19482 (US).		(81) Designated States: AU, CA, JP, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report</i> <i>With amended claims.</i>

(54) Title: METHOD AND APPARATUS FOR SECURING REMOVABLE DATA STORAGE MEDIA

(57) Abstract

A method and device for securing a removable data storage device (10) includes an extension (20), possibly a leash (22) with a clip (24) and possibly a tag (26). The clip (24), for security sake, can be attached to most anything including a data reader operator or a brief case. The extension (20), when device (10) is received by the data reader, extends beyond the opening (e.g., slotted aperture of a disk drive) thereby providing an area for information or point of attachment such that the tag (26) can hang down as a constant reminder and the leash (22) can extend to the brief case.



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METHOD AND APPARATUS FOR SECURING
REMOVABLE DATA STORAGE MEDIA

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FIELD OF THE INVENTION

The present invention generally relates to removable data storage media and, more particularly, relates to modifications and methods for securing removable data storage media.

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BACKGROUND OF THE INVENTION

In today's day and age, where practically everything is performed on or in some way is linked to computers, it is important, but difficult, to ensure the ownership, security and confidentiality of sensitive information stored on removable data storage media.

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It is not hard to imagine one of today's 3 1/2 inch data disks being left in a computer while the disk owner runs an errand. Whether the disk owner leaves the room temporarily (e.g., for a phone call), the disk owner leaves work for the night or the disk owner is travelling for business, circumstances continually arise at work, on-the-road, school, etc. where sensitive/confidential information can be accessed by someone without proper authorization.

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Attempts at securing removable data storage media include placing a physical locking mechanism on a floppy disk to prevent its insertion (see U.S. Patent No. 4,425,999 issued to MacDonald et al.) and storing security codes on the disk in order to screen access to sensitive/confidential material.

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These solutions, however, are not always the best solution for the many different types of removable data storage media available and in use today. Some may not be suited for a locking mechanism and security codes can sometimes become administrative nightmares. Thus, there is

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a real need for a device which can easily and effectively secure removable data storage media.

SUMMARY OF THE INVENTION

5 The present invention involves a method and apparatus for securing a removable data storage device where the removable data storage device has a housing and is adapted to be received in a data reader. Furthermore, the housing includes an extension which projects outwardly from the housing when the removable data storage device is
10 inserted and/or mounted in a data reader. In one embodiment, the invention comprises the extension itself. In all cases, the extension may provide a visual reminder and/or a point of attachment.

15 According to another aspect of the present invention, a leash is attached to the extension in order to effectively connect the data storage device to a distal member.

20 According to yet another aspect of the present invention, a clip is attached to the leash in order to more easily connect the data storage device to the distal member.

25 According to still another aspect of the present invention, a tag is attached to the extension in order to provide a way to visually indicate that the storage device is in the data reader as well as to display personnel information and stored content information.

It is to be understood that both the foregoing general description and the following detailed description are exemplary, but are not restrictive, of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

30 The invention is best understood from the following detailed description when read in connection with the accompanying drawing, in which:

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Fig. 1a is a top view of a removable data storage device suitable for use with the present invention;

Fig. 1b shows the removable data storage device of Fig. 1a modified in accordance with the present invention;

5 Fig. 1c shows another embodiment of the present invention, more specifically the removable data storage device shown in Fig. 1b with the addition of a leash;

10 Fig. 1d shows still another embodiment of the present invention, more specifically the removable data storage device shown in Fig. 1c with the addition of a clip;

Fig. 1e shows still another embodiment of the present invention, more specifically the removable data storage device shown in Fig. 1d with the addition of a tag;

15 Fig. 2 shows an alternate embodiment of the removable data storage device shown in Fig. 1b;

Fig. 3 shows an alternate embodiment of the removable data storage device shown in Fig. 1b;

20 Figs. 4a and 4b show examples of information which can be maintained on components of the invention as shown in Fig. 1e;

Figs. 4c and 4d show examples of information which can be maintained on components of the invention as shown in Fig 2;

25 Fig. 5 illustrates an exemplary application of the present invention in use with a personal computer and a brief case;

Fig. 6 shows a specific embodiment of the present invention; and

30 Fig. 7 shows an alternate embodiment for securing a removable data storage device.

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DETAILED DESCRIPTION

Fig. 1a shows a conventional removable data storage device 10, for example a 3 1/2 inch disk, for use with the present invention. Storage device 10 has a housing 11 within which the data storage media (not shown) is enclosed. This type of storage device 10 is typically inserted, in a planar oriented manner, into a data reader (see Fig. 5), for example a disk drive of a personal computer. Examples of other removable data storage devices suitable for use with the present invention include, but are not limited to, 3 1/2 inch Floptical diskettes, music minidisks (MDs) by Sony, PCMCIA's, bubble memories, optical cartridges and the like. It should be noted that the above examples of removable data storage media are to be distinguished from removable powered storage devices which include storage media as but a part of the device (e.g., Data Express manufactured by Kingston Technology Corp., Fountain Valley, California).

As seen, housing 11 has a front edge 12 and a back edge 14. Device 10 also has a window 16 in housing 11 which remains closed until the device is inserted into a data reader.

Figs. 1b-1f show modified forms of the device shown in Fig. 1 in which are embodied various forms of the present invention.

The housing 11 of device 10, shown in Fig. 1b, includes an extension 20. In this way, extension 20 projects outwardly from the data reader when device 10 is inserted in the data reader. In the preferred embodiment, extension 20 is an adherent tab (or integral housing element extending from back edge 14, as shown in Fig. 3) centrally-located on the back edge 14 of device 10. Adherent tab 20 is preferably secured to housing 11 using a permanent adhesive. An example of a tab suitable for use with the present invention is the RAC 2794 made by DO-IT Corp., South Haven, MI. Moreover, extension 20 is preferably

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substantially as wide as a centrally-located notch (or sub-slot) often cut-out of the larger slotted aperture of a data reader (e.g., disk drive) which is designed for receiving the data storage device.

5 In another preferred embodiment of the invention, as shown in Fig. 1c, extension 20 includes aperture 21 and a means 22 for physically connecting device 10, via extension 20, to a distal member (not shown), where the distal member can be most anything from a brief case, to the operator of
10 the data reader, to an alarm, etc. Means 22 may be, for example, a leash, a reinforced string, a chain, a bar, a tape or any such mechanical connecting element. Aperture 21 is optional, primarily providing a point of attachment for means 22 and the like; however, as is appreciated by those
15 skilled in the art, means 22 could be attached to extension 20 in other ways including a surface adhesive.

 In a further modification of the embodiment shown in Figure 1c, as seen in Fig. 1d, a clip 24 is attached to the end of means 22 for ease in securing device 10 to a
20 distal member. In a preferred embodiment, clip 24 is an alligator clip.

 As shown in Fig. 1e, means 26 for better assuring a visible indication that device 10 is in the data reader, comprises an additional extension member attached to
25 extension 20. In a preferred embodiment, means 26 for greater visibility of extension 20 comprises a tag where the tag is of a bright color (e.g., safety orange) and includes space on either side for information regarding the data reader operator (e.g., name, position, security level, etc.
30) and the contents of the device (e.g., employee information, program names, etc.). This is further illustrated in Figs. 4a and 4b.

 Fig. 2 shows an alternate embodiment of the present invention. The embodiment of Fig. 2 is similar to
35 that of Fig. 1b except the extension 20a is large enough to provide space for identifying indicia (e.g., security level

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of information contained on disk). The larger extension 20a may eliminate the desirability or necessity of a second extension or additional tag, such as seen in Fig. 1e. Furthermore, as shown in Figs. 4c and 4d, with information
5 stored on extension 20a, means 22 and clip 24 can be attached thereto in a practical and convenient location.

Fig. 3 shows yet another alternate embodiment where the extension 20b is an integral part of the housing. Depending on how the housing is made, e.g., injection
10 molding, an extension 20b including an aperture 28 (optional) can be incorporated at the time of manufacture to reduce the desirability of a separate extension such as a tab secured to the housing by way of a permanent adhesive.

In use, the present invention, once attached to a
15 removable storage device which is subsequently inserted into a data reader, is used to (1) continuously indicate to a user that device 10 is still in the data reader, (2) indicate to other personnel if a user with the proper authorization/security clearance has access to the device
20 and/or (3) ensure that a proper user does not exit a room, building or premises and leave a data storage device which contains sensitive/confidential information unattended.

Fig. 5 illustrates one possible application for the present invention. As shown in Fig. 5, device 10
25 including a tab 20, a connecting means 22 with a clip 24 and a tag 26 are inserted into a personal computer 30. The clip 24, for security sake, is attached to a brief case 32. As seen, the tab 20 extends beyond the slotted aperture of the disk drive providing a point of attachment such that the tag
30 26 can hang down as a constant reminder and the leash 22 can extend to the brief case 32.

Fig. 6 shows another alternate embodiment of the present invention. In this embodiment, the present invention comprises a data disk label 600, including an
35 adherent member 610 adapted to be adhered (such as by contact or soluble adhesive on either of the facing surfaces

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of the label or the housing) to a planar data storage medium housing or a surface area thereof adjoining the rearward edge of said housing, the label 600 includes an extension member 620 configured to extend rearwardly, i.e., out of a drive in which the removable data storage medium is received.

"Rearward" or "rearwardly" as used herein is understood to refer to the direction in which the medium is removed from a drive in which it is adapted to be received for reading data thereon. "Adhesive", as used herein, is a material by which two surfaces are made to adhere to one another. It may be applied to or carried by one or both of the surfaces to be adhered or it may be a characteristic of the composition of one or both of the surfaces to be adhered. In any event, such adhesives may function, (to cause the surfaces to adhere to one another) merely by bringing the surfaces into contact with one another (in which the case the adhesive may be referred to as a "contact adhesive") or by solubilization (such as be moistening) or by activation (such as heating).

Preferably the data disk label 600 includes contact adhesive on that part of the surface thereof which corresponds to an area of the medium housing intended to receive a label. In conventional data disk housings, this area is recessed slightly to minimize interference between a label adhered thereto and a drive in which the medium and housing are received for reading of data thereon.

Preferably also, the extension member 620 of the data disk label of this invention includes a segment 630 adapted for recordation or identifying or security information on a surface thereof (either directly or on a writing medium, such as paper, adhered thereto).

Preferably data disk label 600 with extension member 620, of this invention, includes an opening or perforation 640 in the extension member 620, through which connection may be made, such as by a leash (as otherwise

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shown and described herein) to a distal security device, such as a brief case, for more securely retaining control of a data disk to which the label is attached or adhered. Optionally opening or perforation 640 may be omitted.

5 Fig. 7 illustrates still another embodiment of the present invention. In this embodiment, housing 11 includes a slot 710 located at a rear corner and adapted to receive an attachment means 720 for providing a temporary point of
10 that the rear corner positioning is preferred to ensure that the storage medium enclosed with the housing 11 is not harmed.

 Slot 710 is molded into housing 11 such that a removable attachment means 720 can be easily and
15 conveniently inserted in or removed from slot 710 when data storage device is not inserted in a data reader. The removable attachment means 720, for example, includes flexible, parallel legs 724a, 724b which compress toward each other to allow means 720 to be inserted in slot 710;
20 yet, upon full insertion, legs 724 return to their natural position thereby locking means 720 within slot 710 by way of protrusions 726a, 726b and inner walls 732a, 732b.

 To unlock or separate the connection, pressure is applied to protrusions 730a, 730b to compress legs 724 and
25 allow protrusions 726 to exit slot 710 without contacting inner walls 732 of slot 710. Means 720 preferably includes an aperture 740 adapted to be connected with a leash or the like.

 Although the invention is illustrated and
30 described herein as embodied in a device for securing a data storage device having an extension, a leash, a clip and a tag, the invention is nevertheless not intended to be limited to the details shown. Rather, various modifications may be made in the details within the scope and range of
35 equivalents of the claims and without departing from the spirit of the invention.

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What is Claimed:

- 1 1. An apparatus for securing a removable data
2 storage device comprising:

3 removable data storage device having a housing and
4 adapted to be received in a data reader, said housing
5 including an extension which projects outwardly from the
6 housing when the removable data storage device is received
7 in the data reader.
- 1 2. The apparatus of claim 1, wherein the
2 extension includes a point of attachment.
- 1 3. The apparatus of claim 2 further comprising
2 means for physically connecting the extension, via the point
3 of attachment, to a distal member.
- 1 4. The apparatus of claim 2, wherein the
2 extension is a tab permanently secured to the housing and
3 the point of attachment is an aperture in the tab.
- 1 5. The apparatus of claim 2, wherein the
2 extension is integral to the housing.
- 1 6. The apparatus of claim 5, wherein the
2 integral extension includes an aperture.
- 1 7. The apparatus of claim 1, wherein the means
2 for physically connecting is a leash.
- 1 8. The apparatus of claim 6, wherein the means
2 for physically connecting further includes a clip attached
3 to an end of the leash.
- 1 9. The apparatus of claim 1, wherein the
2 extension includes a visual indication that the device is in
3 the data reader or space for indentifying indicia which
4 extends beyond the data reader.
- 1 10. The apparatus of claim 1 further comprising
2 means, connected to the extension, for visibly indicating

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3 that the removable data storage device is inserted within
4 the data reader.

1 11. The apparatus of claim 10, wherein the means
2 for visibly indicating is a tag displaying personnel
3 information on one side and data storage content information
4 on another side.

1 12. The apparatus of claim 1, wherein the housing
2 has a front edge which enters the data reader first and a
3 back edge which enters the data reader last upon insertion,
4 wherein the extension is centrally located on the back edge
5 of the housing.

1 13. A method for securing a removable computer
2 data storage device having a housing, which is to be
3 inserted into a data reader, to a distal member, the method
4 comprising the steps of:

5 a) providing a permanent extension of the housing
6 to extend beyond the data reader when the storage device is
7 inserted;

8 b) providing a point of attachment on the
9 permanent extension;

10 c) attaching one end of a leash to the point of
11 attachment; and

12 d) attaching another end of the leash to a clip to
13 be used to attach to the distal member.

1 14. The method of claim 13 further comprising the
2 step of:

3 e) attaching a tag to the point of attachment for
4 visibly indicating that the storage device is in the data
5 reader.

1 15. Data disk label comprising a planar adherent
2 member having a shape and size corresponding to and adapted
3 to be adhered to a surface area on a data disk housing at

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4 the rearward edge thereof, said adherent member connected to
5 an extension member, adapted to extend rearwardly from said
6 adherent member, when said adherent member is adhered to
7 said housing, a sufficient distance for said extension
8 member to be visible when said data disk and housing are
9 mounted in a drive therefor.

1 16. Data disk label, as recited in claim 15,
2 wherein said adherent member and said extension member are
3 integrally formed as a single component.

1 17. Data disk label, as recited in claim 15,
2 wherein said adherent member includes a contact adhesive on
3 the surface thereof adapted to be adhered to said surface
4 area of said disk housing.

1 18. Data disk label, as recited in claim 15,
2 wherein said extension member includes an opening, by which
3 said label is adapted to be connected to a distal security
4 device.

1 19. Data disk label, as recited in claim 15,
2 wherein said extension member, includes a surface for the
3 recordation of security or identifying information thereon.

1 20. The apparatus of claim 1 wherein the data
2 storage device is a computer data disk and the data reader
3 is a disk drive.

1 21. An apparatus for securing a removable data
2 storage device comprising:

3 removable data storage device having a housing and
4 adapted to be received in a data reader, said housing
5 including a slot accessible when the removable data storage
6 device is not received in the data reader; and

7 removable attachment means, adapted to lock into
8 the slot, for providing a temporary point of attachment to
9 the data storage device.

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AMENDED CLAIMS

[received by the International Bureau on 20 February 1995(20.02.95);
original claims 1-21 replaced by amended claims 1-18 new claim 19 added;
(4 pages)]

1. (Amended) An apparatus for securing a removable data storage device comprising:

removable data storage device having a housing and adapted to be received in a data reader, said housing including an extension which projects outwardly from the data reader when the removable data storage device is received in the data reader; said device including a securing means selected from the group consisting of (a) a means for attaching said extension to a distal member, disposed at a spaced distance from said extension, (b) a device identifying means in combination with said extension and (c) an additional extension member attached to said extension, said additional extension member extending away from said data reader.

2. (Amended) The apparatus of claim 1, wherein said securing means comprises means (a) and said attaching means comprising a leash attached to said extension.

3. (Amended) The apparatus of claim 2, wherein the extension is a tab permanently secured to the housing and said attaching means is attached to an aperture in the tab.

4. (Amended) The apparatus of claim 2, wherein the extension is integral to the housing.

5. The apparatus of claim 4, wherein the integral extension includes an aperture.

6. (Amended) The apparatus of claim 5, wherein said attaching means includes a clip attached to the distal end of the leash.

7. (Amended) The apparatus of claim 1, wherein said securing means comprises identifying indicia combined with said extension on a portion thereof which extends outwardly of the data reader.

8. (Amended) The apparatus of claim 1, wherein said securing means comprises means (c) and said additional extension comprises a tag, said tag including identifying indicia thereon.

9. The apparatus of claim 1, wherein the housing has a front edge which enters the data reader first and a back edge which enters the data reader last upon insertion, wherein the extension is centrally located on the back edge of the housing.

10. (Amended) A method for securing a removable computer data storage device having a housing, which is to be inserted into a data reader, to a distal member, the method comprising the steps of:

a) providing a permanent extension of the housing to extend beyond the data reader when the storage device is inserted, wherein said distal member is disposed at a spaced distance from said extension;

b) providing a point of attachment on the permanent extension;

c) attaching one end of a leash to the point of attachment; and

d) attaching another end of the leash to a clip to be used to attach to the distal member.

11. The method of claim 10 further comprising the step of:

e) attaching a tag to the point of attachment for visibly indicating that the storage device is in the data reader.

12. (Amended) A removable data storage device label comprising a planar adherent member having a shape and size corresponding to and adapted to be adhered to a surface

area on a removable data storage device housing at the rearward edge thereof, said adherent member connected to an extension member, adapted to extend rearwardly from said adherent member, when said adherent member is adhered to said housing, a sufficient distance for said extension member to be visible when said removable data storage device and housing are mounted in a drive therefor.

13. (Amended) A removable data storage device label, as recited in claim 12, wherein said adherent member and said extension member are integrally formed as a single component.

14. (Amended) A removable data storage device label, as recited in claim 12, wherein said adherent member includes a contact adhesive on the surface thereof adapted to be adhered to said surface area of said disk housing.

15. (Amended) A removable data storage device label, as recited in claim 12, wherein said extension member includes an opening, by which said label is adapted to be connected to a distal security device.

16. (Amended) A removable data storage device label, as recited in claim 12, wherein said extension member, includes a surface for the recordation of security or identifying information thereon.

17. The apparatus of claim 1 wherein the data storage device is a computer data disk and the data reader is a disk drive.

18. (Amended) An apparatus for securing a removable data storage device comprising:

removable data storage device having a housing and adapted to be received in a data reader, said housing including a insertion slot having inner walls , adapted to receive compressible protrusion legs, and accessible when

the removable data storage device is not received in the data reader; and

a removable attachment means, including compressible protrusion legs, adapted to lock into the slot, for providing a temporary point of attachment to the data storage device.

19. (Newly Added) An apparatus for securing a removable data storage device comprising:

removable data storage device having a housing and adapted to be received in a data reader; and

label means, secured to said removable data storage device, including a planar adherent member having a shape and size corresponding to and adapted to be adhered to a surface area on the removable data storage device housing at the rearward edge thereof, said adherent member connected to an extension member, adapted to extend rearwardly from said adherent member, when said adherent member is adhered to said housing, a sufficient distance for said extension member to be visible when said removable data storage device is fully inserted in the data reader.

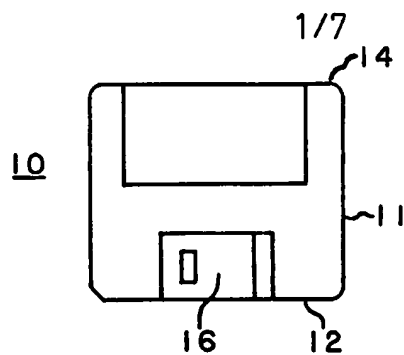


FIG. 1a

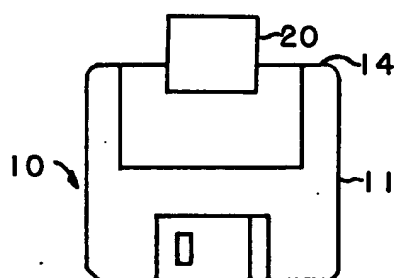


FIG. 1b

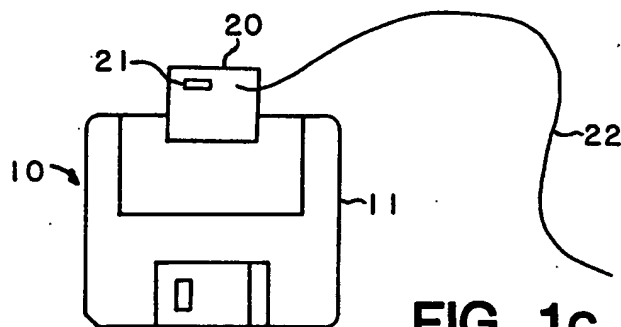


FIG. 1c

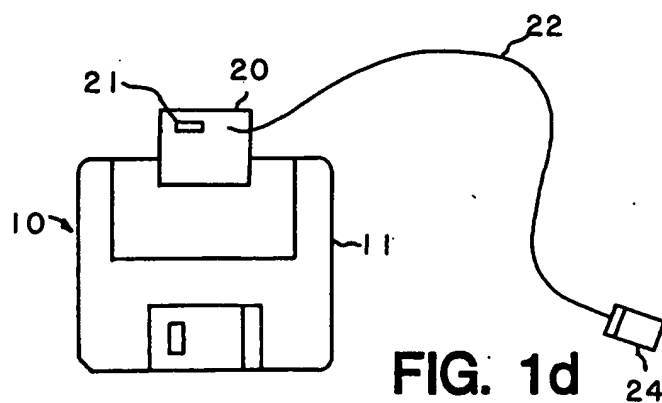


FIG. 1d

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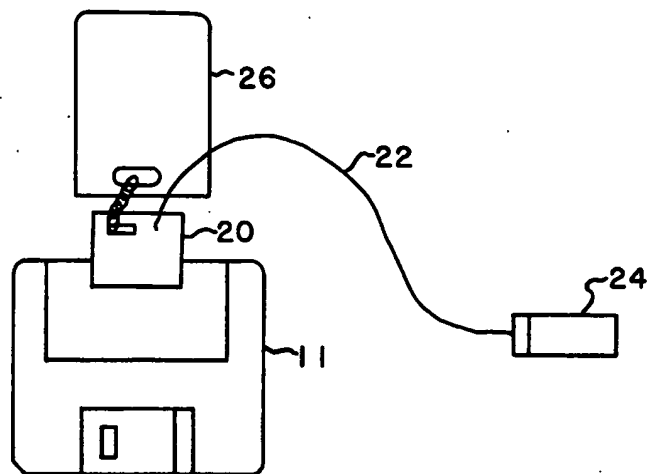


FIG. 1e

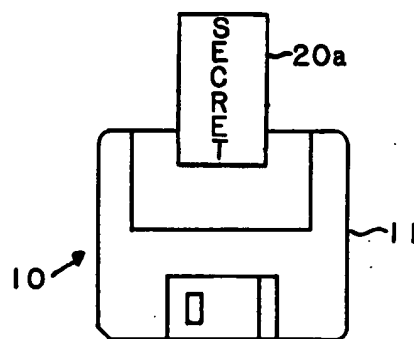


FIG. 2

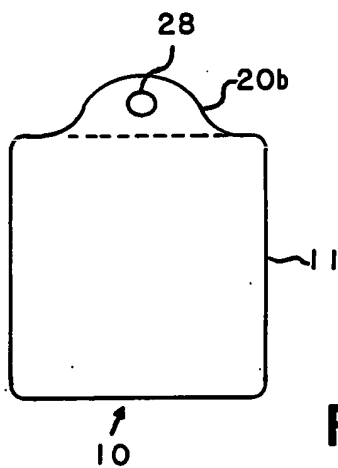


FIG. 3

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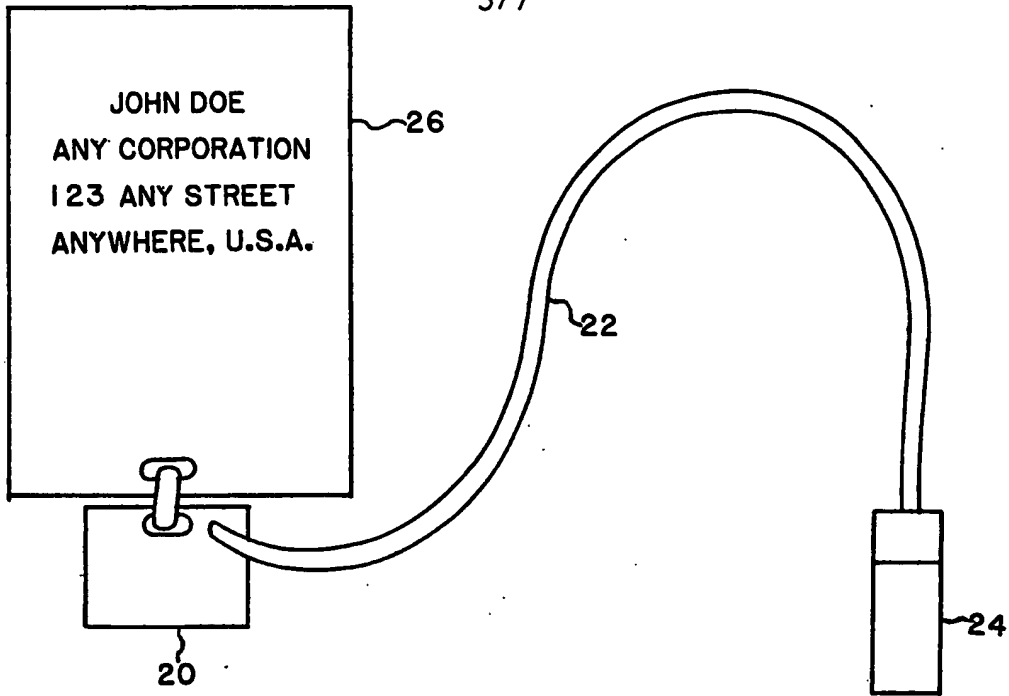
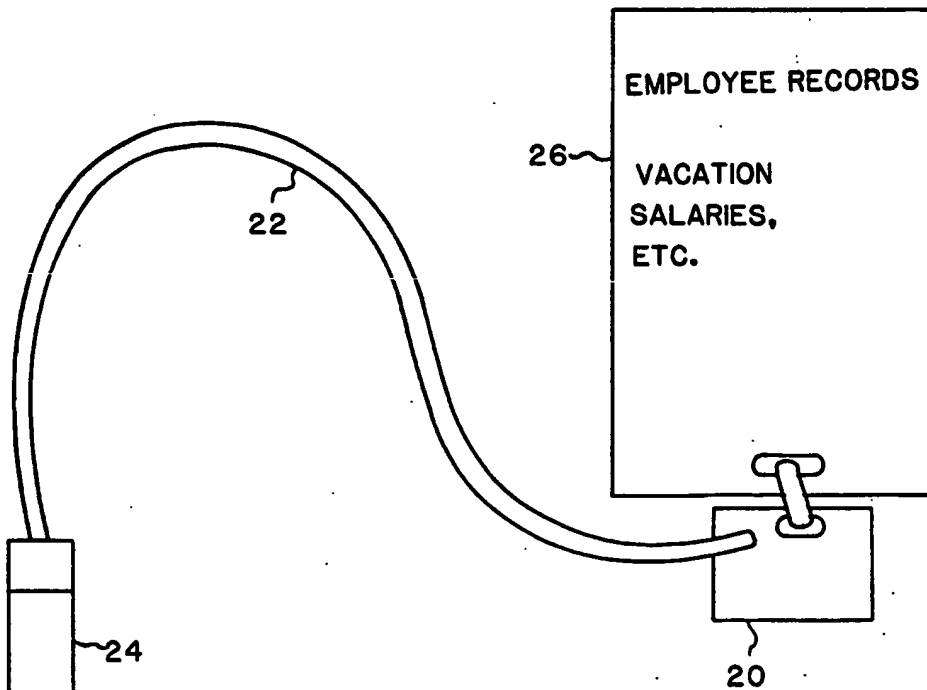


FIG. 4a

FIG. 4b



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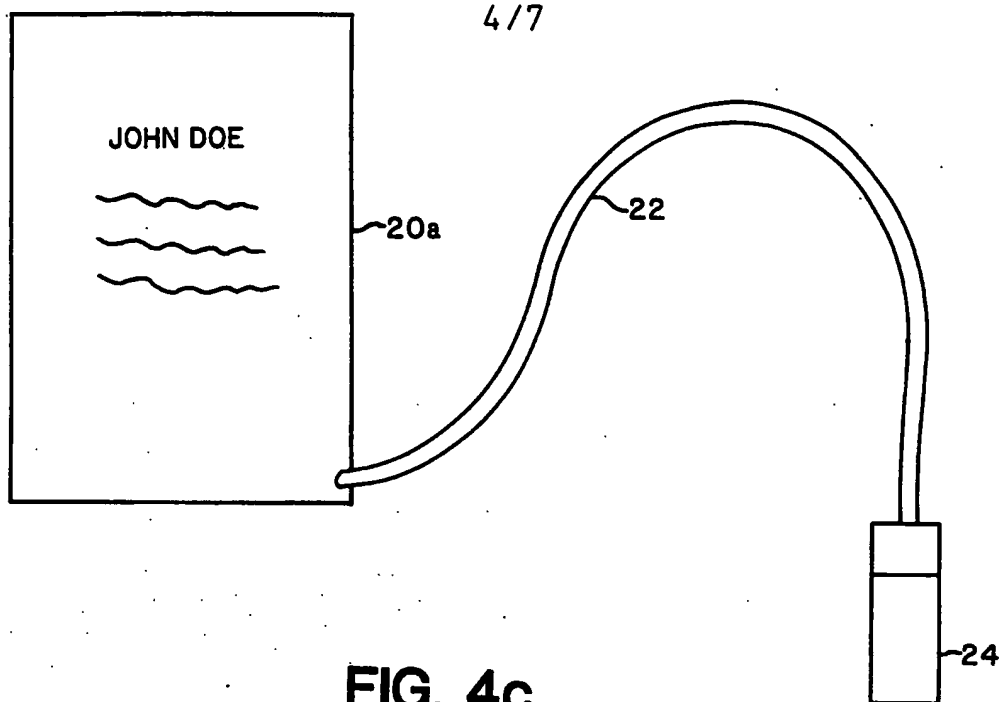
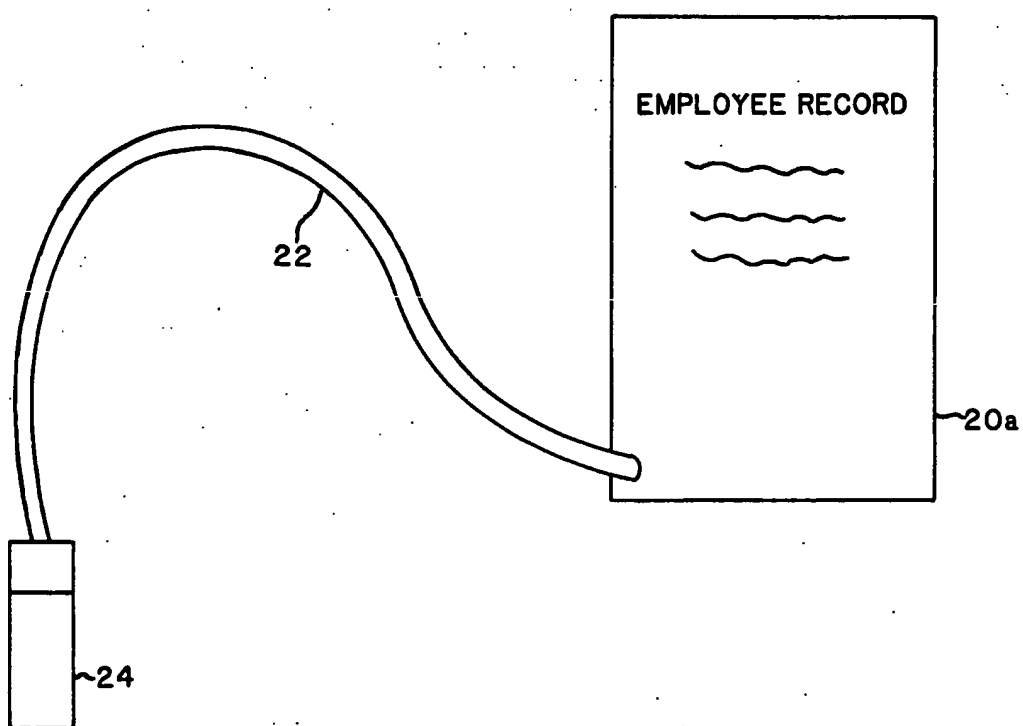


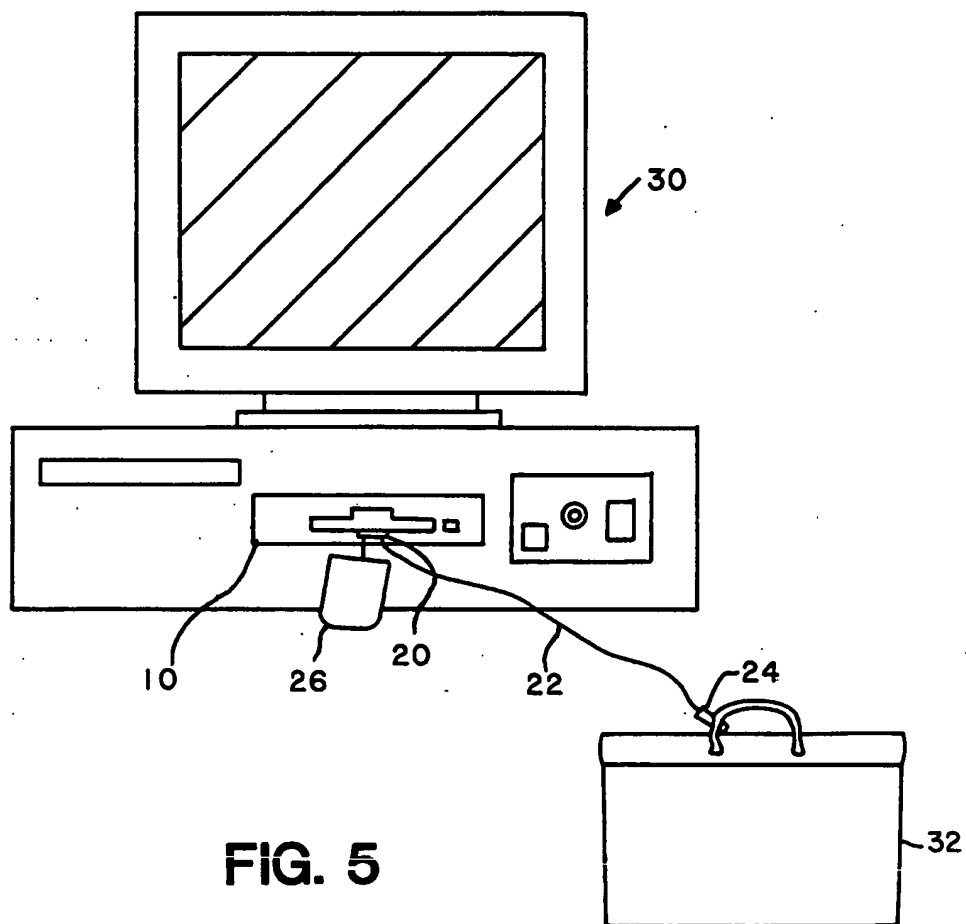
FIG. 4c

FIG. 4d



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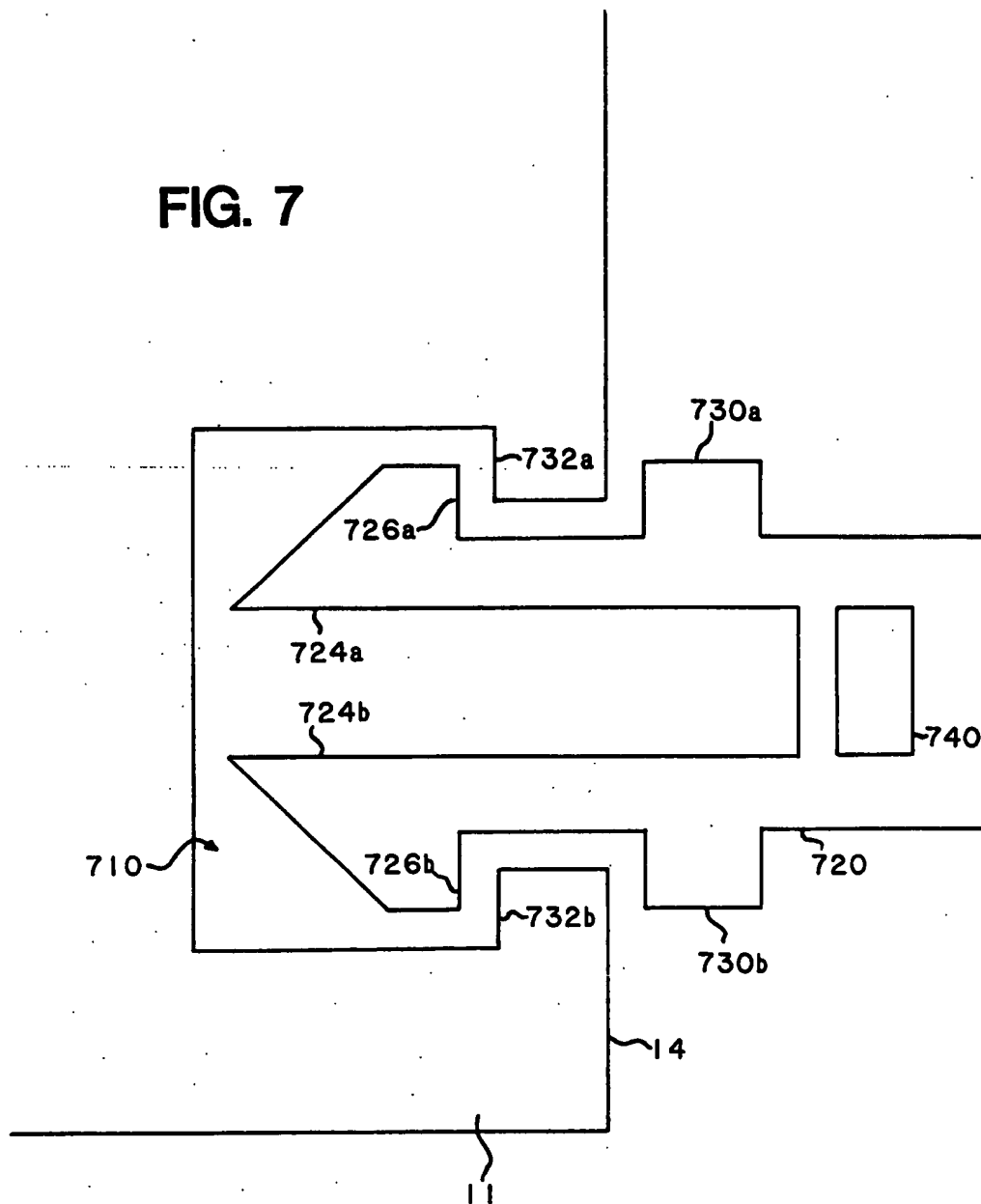
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FIG. 7



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US94/11737**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(6) :G11B 23/03

US CL :360/133

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 360/133, 360/60, 206/387, 395/275

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS Search (data, disk, cartridge, cassette, housing, label, tag, leash, chain, rope, wire, extension, indicia)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X/Y	US. A. 5,136,862 (LANGEN) 11 August 1992, see figures 1-2 and 4.	1-6, 9-10, 12, 20 and 21/7-8, 11, 13 and 18-19
Y	US. A. 4,611,714 (BEHRENS) 16 September 1986, see figures 1-3.	7-8, 11 and 13
Y	US.A. 4,794,470 (LAUFFENBURGER ET AL) 27 December 1988, see abstract; column 6, lines 53-61 and figure 9.	15-17
Y	US.A. 4,860,128 (NAKAGAWA) 22 August 1989, see figures 1, 2A and 3B.	15-17

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Date of the actual completion of the international search

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Date of mailing of the international search report

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